(2) - Irvin

IN THE CIRCUIT COURT OF
THE 11TH JUDICIAL CIRCUIT
IN AND FOR DADE COUNTY, FLORIDA

GENERAL JURISDICTION DIVISION

MARIE J. FONTANA,

Plaintiff,

vs.

PHILIP MORRIS INCORPORATED, ("PHILIP MORRIS U.S.A."), R.J. REYNOLDS TOBACCO COMPANY, LORILLARD TOBACCO CO., and BROWN & WILLIAMSON TOBACCO CORP., Individually and as Successor to the AMERICAN TOBACCO COMPANY,

Defendants.

COPY

CASE NO. 00-01731 CA01

TRIAL

Volume 9

TRANSCRIPT OF PROCEEDINGS

in the above-styled cause before the Honorable Thomas S. Wilson, Jr., Circuit Judge, at the Dade County Courthouse, 73 W. Flagler Street, Miami, Florida, on Friday, March 23, 2001 at 10:00 a.m.

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On behalf of Defendants Philip Morris and Lorillard:

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I N D E X

CHARLES IRVIN, PH.D.

Cont'd. Cross-Examination by Mr. Engram 1019
Redirect Examination by Mr. Hunter 1062
Recross Examination by Mr. Engram 1081

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(THEREUPON, the following proceedings were held:)

THE COURT: How are we doing this morning? What new developments do we have?

MR. UPSHAW: None.

THE COURT: I'm glad I'm seated. I wouldn't believe that for anything.

Todd is bringing the panel up.

Mr. Hunter, why don't you get the doctor in here.

Doctor, good morning.

THE WITNESS: Good morning.

THE COURT: I want to have you here, so when Todd comes in you're ready.

(Discussion off the record.)

THE COURT: We have a question. The doctor has asked me, he said, "Can I ask you a question?" And I said, "Sure."

And the question was that he's been thinking about some of his testimony over the evening, and he wanted to review some of the transcripts because he thinks he might have a change or two.

So that was his question, and I can't give him an answer.

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So I'll let you all deal with it the best that you can.

MR. HUNTER: Well, I have the testimony here, Judge. Can I give it to him and have him --

MR. REILLY: I would object to giving the witness his testimony from a prior day so he can change it. That's unheard of.

THE COURT: Well, then, I'll let you deal with it in a more traditional fashion. Just ask him the question when you get a chance. And if that necessitates a second cross examination, then we'll obviously allow it.

MR. REILLY: Thank you, Your Honor.

THE COURT: But, obviously, it will be just on those new areas.

Let me find out what's going on. How many cameras do we have going up? We have one official over here.

That's where the cameras are, on that side of the table.

VIDEOGRAPHER: I was told to be on the other side.

THE COURT: That's no problem. In an abundance of caution, I don't want any of the

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jurors there, and usually what we do is allow for a pooling of all films so that we don't have a whole bunch of cameras around here.

MR. REILLY: Your Honor, I'm wondering whether we need two cameras in the courtroom.

THE COURT: That's where I'm going. So I think what we -- we always have one camera in the courtroom, and all of the media share that particular film.

MR. HUNTER: Judge, this is a video that I'm paying for, because I have about 3,000 more of these cases to try, and I think that under the rules of evidence, videotaped trial testimony in this case may be admissible in other trials.

THE COURT: Okay. Well, I had no clue whether this was media or what it was.

MR. HUNTER: No. This is me. The second gentleman is my --

MR. GERSON: Video company.

MR. HUNTER: He would be happy to go wherever you tell him to go.

THE COURT: Okay. That's fine. I don't have any problem there at all. I'd just like to keep it at a minimum.

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MR. REILLY: Your Honor, my only question is, we have multiple cameras in the courtroom, I'm not sure why we need more than one camera to record the same event.

THE COURT: Well, as long as it's -- I don't think anybody pays attention to them once we start the trial, very frankly, so I'm just going to allow the second camera because it's his own video. That's all.

So he's not moving around. He's not doing anything.

As a matter of fact, the closer you can get to him, the less noticeable you'll be, and you'll also have a better view of the witness.

Mr. Hunter, in the future, on any of your other trials, please let the Court know beforehand that you're going to be videotaping so that they can know what's going on.

MR. HUNTER: Yes, sir.

THE COURT: Everybody ready to proceed?

MR. HUNTER: Yes.

THE COURT: Okay. The jury is coming in.

(The jury entered the courtroom.)

THE COURT: Everybody have a seat, please. Let the record reflect our jurors are

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present and accounted for.

I hope everyone had a good evening. Ready to go back to work?

JURY PANEL: (Answers in the affirmative.)

THE COURT: Mr. Engram, you're on.

MR. ENGRAM: Thank you, Your Honor.

CONTINUED CROSS EXAMINATION

BY MR. ENGRAM

Q. Dr. Irvin, would you agree that chronic obstructive pulmonary disease, also known as COPD, is a disease state characterized by the presence of air flow obstruction due to chronic bronchitis or emphysema?

A. Yes.

Q. And, in fact, that is the definition that the American Thoracic Society gives for chronic obstructive pulmonary disease; isn't it?

A. That is correct.

Q. Would you agree, then, since the disease, by definition, includes chronic bronchitis, or emphysema, that one also needs to know, then, the definition of chronic bronchitis and emphysema?

A. Yes.

Q. And would you agree that the definition of emphysema is an abnormal, permanent enlargement of

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the air spaces, distal to the terminal bronchiales, accompanied by destruction of their walls and without obvious fibrosis?

A. I agree with everything, but without the obvious fibrosis, but, yes, it's a destruction of the airway walls in the lung.

Q. I'm sorry?

A. It's a destruction of the airway walls causing coalescence of the spaces into larger spaces within the lung.

Q. And what does the phrase "distal to the terminal bronchiales" mean?

A. It means beyond the terminal bronchiales. So if you think about the airways as a tree, it's sort of like the leaves at the end of the tree.

Q. In fact, it's the end of the airways, correct?

A. Yes, sir, it is.

Q. Now, you say that you disagree with the characterization here that emphysema is without obvious fibrosis. Let me approach the witness, Your Honor, and hand you what's been marked as Defendants' Exhibit A-11 for identification.

You recognize that as the Standards for the Diagnosis and Care of Patients with Chronic

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Obstructive Pulmonary Disease published by the American Thoracic Society?

A. Yes, I do.

Q. Were you a member of the board of directors in March of 1995?

A. I believe I was.

Q. And this official statement by the American Thoracic Society was approved by the American Thoracic Society board of directors in March of '95?

A. Yes, sir, it was.

Q. Now, the definitional page, Page 1995, defines emphysema as it appears here, does it not, sir?

A. Yes, it does.

Q. It does include this clause, "and without obvious fibrosis," correct?

A. Yes, it does.

Q. And then --

MR. HUNTER: Judge, I see my client has arrived. Could I have her come in and introduce her?

THE COURT: Sure.

(Ms. Fontana entered the courtroom.)

MR. HUNTER: Marie, this is your jury.

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MS. FONTANA: Good morning.

MR. HUNTER: This is Marie Fontana.

MR. ENGRAM: Now, may I continue, Your Honor?

THE COURT: Yes, sir.

MR. ENGRAM: Your Honor, in the preliminary issue that we considered the other day, one of my boards got mixed up and is somehow missing, but I think it's been found and it will be here shortly.

BY MR. ENGRAM

Q. But let me hand you this definition of chronic bronchitis, Dr. Irvin.

Would you agree that according to the American Thoracic Society, chronic bronchitis is defined as the presence of chronic productive cough of three months, in each of two successive years, in a patient whom other causes of chronic cough have been excluded?

A. Yes, I do.

Q. Thank you.

A. And while I agree with that and I agree with what this says, I will note that physicians often will classify people with chronic bronchitis, even when they have a productive cough that is

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somewhat less than this, particularly if it lasts for longer than two or three years. So, for instance, if a patient is coughing for five or six years, they're often prone to calling them a patient with chronic bronchitis.

Q. And that really wouldn't be accurate, would it, in terms of the definition of chronic bronchitis espoused by the American Thoracic Society, would it?

A. No. It would be a variance of it.

Q. In fact, that would be more accurately referred to recurrent acute bronchitis?

A. It would hardly be acute if it lasts for five or six years, would it?

Q. If it lasts for less than three months in any given year?

A. No. I wouldn't consider it being acute. I mean, if a medical condition is occurring for year after year after year, I would not consider it acute.

Q. And do you have any support in the medical literature for your position, that you can tell this jury?

A. Not today.

Q. Thank you, sir.

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Dr. Irvin, are you familiar with the term "air trapping"?

A. Yes, sir.

Q. And wouldn't you agree that air trapping is found in patients with sarcoidosis on CT scans?

A. I wouldn't have a opinion about that, because, as you've pointed out, I'm not a radiologist.

Air trapping, to a physiologist, is a different thing than what you see in a film. It's something that's functional.

Q. Well, you looked at the CT scan from December of 1996, didn't you?

A. Yes, I did.

Q. That's the CT scan that you showed to Dr. Petty, didn't you?

A. Yes, it is.

Q. But you don't have an opinion as to whether or not in the medical literature air trapping is found in patients with sarcoidosis on computer tomography, CT scans?

A. I haven't reviewed the original studies on that, no.

Q. Well, let me show you -- let me ask you if you agree with this statement: "Small airways

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disease, evident as air trapping on expiratory CT scan, is common in pulmonary sarcoidosis. This abnormality is seen in patients with both an acute, short duration illness and in patients with more chronic, insidious disease."

Do you agree with that statement?

A. No.

Q. Let me show you --

MR. HUNTER: Judge, I think that the manner of this cross examination, he hasn't identified it -- the witness hasn't accepted the thing as authoritative.

THE COURT: Sustained.

THE WITNESS: The reason I don't agree --

THE COURT: Hold on a second.

THE WITNESS: I'm sorry.

BY MR. ENGRAM

Q. Are you familiar with the medical journal Clinical Radiology?

A. Yes, I am.

Q. Do you consider that journal to be an authoritative medical source?

A. Yes, I would.

Q. Let me show you an article published in the 2000 -- let me see the date here -- in the year

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2000, Volume 55, Pages 217 to 221.

Would you agree that that article concludes, as I read to you a minute ago?

A. No, I wouldn't. And I'll tell you why. What this article says is that if you perform a CT scan at residual volume, you can see air trapping.

Now, the CT scans that I've looked at were performed at TLC, and you only get air trapping when you do it this way, when you go down to residual volume.

Q. Did I read the conclusion of that study accurately? I believe it's on --

A. Typically, conclusions aren't in the introduction of a paper, and I would have to look at this one carefully to determine that.

Q. Please, do so.

A. Here we are. It's in the abstract.

"Air trapping is a common feature in sarcoidosis and correlates with evidence of small airways disease on pulmonary function test."

Q. So if someone was of the opinion that air trapping did not occur in patients with sarcoidosis, they would be mistaken?

A. It depends on how they made that conclusion. If they made that conclusion by looking

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at CT scans at TLC, then they wouldn't have come to that conclusion, because the way they get to that conclusion is by performing the CT scan down near residual volume, which is not how CT scans are performed.

Q. Would you recognize the Journal of Thoracic Imaging as an authoritative medical journal?

A. Well, the reason I recognize the journal Radiology as an authoritative journal is because I think I published a paper in there with a colleague a long time ago. But I'm not familiar with this particular journal, and I'd have to speak to my radiologic colleagues to see how they rated it.

Q. So it's your testimony that you've never heard of the Journal of Thoracic Imaging?

A. No.

Q. Dr. Irvin, let's talk a little bit about environmental tobacco smoke and some of your testimony yesterday about that.

Did I understand you to say that it is your belief that environmental tobacco smoke is physically similar to mainstream tobacco smoke?

A. I don't think that that's what I said. I said that sidestream or environmental tobacco smoke

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is similar in some regards and radically different in others.

MR. HUNTER: Can we take this down so we can see?

MR. ENGRAM: Sure.

BY MR. ENGRAM

Q. You spent some time yesterday talking about sidestream smoke, and I thought you inferred that those studies relating to sidestream smoke applied to environmental tobacco smoke?

A. I did, because from my reading, experts equate sidestream smoke to environmental tobacco smoke.

Q. What experts equate sidestream smoke to environmental tobacco smoke?

A. I believe I read that in the EPA report from California.

Q. Did the United States Surgeon General ever equate sidestream smoke with environmental tobacco smoke?

A. I don't know, but that was back in 1986, and the report I was looking at was from 1999, and I assumed it was more up to date.

Q. Let me read you this quote: "Comparison of the relative concentrations of the various

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components of sidestream and mainstream smoke provide limited insights concerning the toxicological potential of environmental tobacco smoke in comparison with active smoking."

A. What date was that?

Q. Do you agree or disagree with that statement?

A. It depends. What date was that statement made?

Q. Do you think that the characteristics of sidestream and mainstream and environmental tobacco smoke have changed since the Surgeon General's Report?

A. No.

Q. Do you agree or disagree with that statement?

A. I disagree with it.

Q. Let me show you what's been marked as Plaintiff's Exhibit 1-C for identification, and I'll ask you to turn to Page 24.

A. Page 24?

Q. Yes, sir.

Do you see the quote on Page 24 that: "Comparison of the relative concentrations of the various components of sidestream and mainstream

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smoke provides limited insight concerning the toxicological potential of environmental tobacco smoke in comparison with active smoking"?

A. Yes, sir, I do.

Q. Are you aware that the United States Surgeon General specifically cautioned against extrapolating data from active smoking to environmental tobacco smoke exposure?

A. I'm not aware that he did, but I think he's wrong.

Q. You think the U.S. Surgeon General was wrong?

A. I think he's dead wrong.

Q. Let me ask you to go to Page 24, again. Reading further --

A. Uh-huh.

Q. -- do you know that the United States Surgeon General has specifically stated the dose/response relationships between specific tobacco smoke components and specific diseases are not sufficiently established for the necessary extrapolations from active smoking to environmental tobacco smoke exposure for individual agents?

A. Mr. Engram, I see what it says, but I also point out that this was in 1986, and we know some

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more things about the effects of environmental tobacco smoke today.

Q. Is there a difference between environmental tobacco smoke today and environmental tobacco smoke, the characteristics of environmental tobacco smoke in 1986?

A. I don't think so, but I assume that the cigarettes have also changed somewhat since then, too.

Q. Now, if you think that the U.S. Surgeon General was dead wrong, would you also agree that the senior editor of the 1986 report, Dr. David Burns, was dead wrong?

MR. HUNTER: Judge, I object to that question.

THE COURT: Sustained.

BY MR. ENGRAM

Q. Do you know who the senior editor of the 1986 U.S. Surgeon General's report was?

A. I think you just told me. Dr. Burns.

Q. Do you --

A. But I don't know. I'd have to get the -- well, here. Let's look.

Q. Yes.

A. Well, I got Robert Wyndham, some assistant

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secretary for health. And I got Otis Brown, a secretary of something. Another Otis Brown.

Sometimes they put these things in the back. Let's look there.

Q. Turn to page Roman numeral XIII in the acknowledgments, in the beginning of the document.

A. The foreword.

Q. Roman numeral XIII.

A. Oh, here we are.

Here we go. Senior scientific editor was Dr. David M. Burns, Associate Professor of Medicine, Pulmonary and Critical Care, San Diego.

Q. Okay. So if an individual has served as senior editor for one of the U.S. Surgeon General Reports, would you assume that he's endorsed the statements contained in that report?

A. Typically, they do.

Q. And if you believe that that statement is wrong, then was Dr. David Burns, the senior editor, mistaken to endorse that statement?

MR. HUNTER: Judge, I object. Dr. Burns is another witness who will testify in this case, and he's asking this witness to comment on another witness' opinion.

THE COURT: Sustained.

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BY MR. ENGRAM

Q. Mainsteam and sidestream smoke, Dr. Irvin, are collected in scientific chamber environments, correct?

A. They are.

Q. Now, you've never been involved in a study where mainstream and sidestream smoke were collected in scientific chamber environments, have you?

A. No. I've been in plenty of chambers with sidestream smoke, though.

Q. And the characteristics of mainstream and sidestream smoke, as measured in these chambers, do not represent those of environmental tobacco smoke as inhaled by nonsmokers under nonexperimental conditions, do they?

A. I don't know.

Q. Is that an accurate statement from the 1986 Surgeon General Report at Page 24?

A. Where are we reading now?

Q. The characteristics of mainstream and sidestream smoke as measured in these chambers, quote, "do not represent those of ETS as inhaled by nonsmokers under nonexperimental conditions," end quote.

A. That's what it says, and they also make no

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reference to any studies, so I don't know why they made that statement.

Q. Isn't it also true, Dr. Irvin, that people inhale environmental tobacco smoke substantially different than smokers inhale mainstream smoke?

A. Yes, that is true.

Q. Would you agree that mainstream smoke is inhaled intermittently by the smoker with intense inhalation, often followed by a breath hold that results in a more equal distribution?

A. Now, let's think about that. A person, when they smoke, sucks in pretty hard, typically. Some of them hold it in; some of them don't. Some of them inhale; some of them don't.

So sometimes you're right and sometimes you're wrong.

Q. Okay. Environmental tobacco smoke, on the other hand, is inhaled with tidal breaths, correct?

A. That is correct.

Q. And what are tidal breaths, doctor?

A. Tidal breaths are the volumes of air that we move in and out. That's called tidal because it's like a sea as it moves in and out.

Now, the tidal volume of a normal person is about 500 CC's, but during exercise, say when

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they're working or walking, that tidal volume goes up, and when you're at high altitude, it goes up even more.

Q. Now, tidal breaths are the way you and I are breathing right now; isn't that right?

A. Sometimes when I'm talking, I'm not breathing with tidal breaths.

Q. And breath-holding does not normally occur with tidal breathing, does it?

A. With most people, no. But there are people who have abnormal breathing patterns, and they'll breathe in and hold their breath and then breathe out. It's unusual, but there are people who do that.

Q. So can you demonstrate for the jury how you would -- can you demonstrate tidal breathing for the jury and compare it to breath-holding?

A. Sure. Be happy to.

Let me stand up so you can see my chest wall move a little bit better.

So if you put your hands on your chest -- actually, you can do this experiment yourself. Just put your hands on your chest and feel your chest moving. That's tidal breathing.

Now, take a big breath in, as if I were

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doing a diffusing capacity, and hold my breath. And then expire.

Q. Thank you, Doctor.

A. You're welcome.

Q. Do you know what the National Research Council is?

A. Yes, sir.

Q. What's the National Research Council, Dr. Irvin?

A. You know, actually I don't know what it is. It's a National Research Council for the government of the United States. I'm not absolutely familiar with its make-up or its purpose.

Q. It's a research arm of the federal government, isn't it?

A. I'll accept that.

Q. Okay. And are you aware that the National Research Council of the United States government also recognizes that environmental tobacco smoke is substantially different from mainstream smoke?

A. I don't know, because I haven't read any of their reports.

Q. Okay. Well, let me hand you one of their reports entitled: Environmental Tobacco Smoke: Measuring Exposures and Assessing Health Risks,

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identified as Defendant's Exhibit A-15 for identification.

Let me ask you to turn to Page 25 in that report.

Would you agree with the National Research Council, Dr. Irvin, that tobacco smoke aerosols are diluted with air by the time they are inhaled as environmental tobacco smoke?

A. Yes, I would agree with that, without having to read this.

Q. Okay. And would you also agree that the dose of cigarette smoke delivered to the lungs of nonsmokers exposed to environmental tobacco smoke is both qualitatively and quantitively different from mainstream smoke, being a small fraction of that delivered to the lungs of an active smoker?

A. You asked me two questions. The first question was is it quantitively -- qualitatively different than the smoke delivered to the lungs of a smoker, and I would have to agree with that, because I know from my reading that the chemical composition of sidestream or environmental tobacco smoke is different than the composition of smoke from -- that's pulled through a cigarette.

The second part of your question was --

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let's see if I get this right --

Q. Quantitively.

A. Quantitively. Is it quantitively the same amount of smoke that a smoker is exposed to?

Now, before I read a paper this morning in my hotel room, I might have agreed with you. You might have said, "Well, I'm sitting in a smokey bar, and although I'm not smoking, I wouldn't be exposed to quite as much cigarette smoke," and I was reading a paper that I pulled from the library this morning in my hotel room, where they were doing some estimates of how much smoke a person gets exposed to in the work place, and you quickly come to the conclusion that it's quite a lot, and as much as the smoke that an active smoker gets exposed to.

Q. So you would -- if you turned to Page 184 --

A. Uh-huh.

Q. -- you would disagree with the statement contained on 184, that: "The dose of cigarette smoke delivered to the lungs of nonsmokers exposed to ETS is both qualitatively and quantitively different from mainstream smoke, being a small fraction of that delivered to the lungs of an active smoker"?

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A. Yes, sir, I would. And I want to point out that this was published in 1986, and the paper I was reading this morning was published in 1988.

Q. And when I deposed you twice in this case, you had never seen that paper that you're referring to this morning?

A. No, I hadn't.

Q. Did that paper point out that they, too, differed from the National Research Council?

A. They didn't quote the National Research Council, but in the introduction of the paper, they said: Well, we don't know much about this and we need to understand more about it, so now we're going to investigate the effects of environmental tobacco smoke on lung function in men and women who are exposed to environmental tobacco smoke at home and in the work place.

Q. Dr. Irvin, yesterday you testified about several constituents that you believe are in environmental tobacco smoke, correct?

A. Yes.

Q. And you told the jury about these chemicals, because you think that these chemicals in environmental tobacco smoke are important?

A. Yes.

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Q. Are you aware that the federal government, the United States government, regulates occupational exposure to chemicals?

A. Very aware.

Q. Do you know what OSHA PELs are?

A. I know what OSHA is. It's the Occupational Safety Health Administration.

Q. Okay.

A. And PELs?

Q. Yes. You've never heard the acronym PEL?

A. No, I have not.

Q. So you're not familiar that the Occupational Safety and Health Administration establishes permissible exposure levels for chemical exposures in the work place?

A. Oh, I've heard the term "permissible exposure levels," but I didn't -- I didn't recognize PEL right off the bat.

Q. Okay. Can you give this jury one example of a chemical in environmental tobacco smoke that has been measured in excess of its OSHA PEL in an airline cabin?

A. No.

Q. Can you give an example of a chemical in ETS that has been measured in excess of its OSHA PEL

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in any environment?

A. I'd have to go to the library and look that up.

Q. Has any ETS, environmental tobacco smoke, constituent been measured above its permissible exposure limit set by the federal government in a smokey bar?

A. You know, I don't know, but I know it's banned -- there are laws against smoking in public places.

Q. That wasn't my question, Dr. Irvin.

Do you know --

A. No, but I conclude from the fact that there's a sign out here in the hallway that says you're not supposed to smoke that some government officials here in Florida have decided it's not good for you.

Q. Do you know whether any ETS constituent has been measured above its permissible exposure limit in a smokey bar?

A. No, I don't.

Q. You talked about ammonia yesterday as one of those chemicals in environmental tobacco smoke that you were concerned about, correct?

A. Yes.

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Q. You even said that ammonia in environmental tobacco smoke was more concentrated than in active smoking?

A. That's what I've read.

Q. Now, you know that scientists can measure ammonia in mainstream tobacco smoke, right?

A. Yes. I assume that's how they put that in that report that Reynolds published.

Q. Okay. You still have the 1986 Surgeon General's Report for some of the mainstream values for ammonia?

Go to Page 128, I believe.

A. I don't see any ammonia here. I see duration peak formation, temperature and pH.

Q. Are you on 128?

A. I'm on 128, sir, and I'm in this --

Q. Okay.

A. Are we on the same page here?

Q. Table 2, Distribution of Constituents?

A. I have Table 1 on 128, Mr. Engram. We have a different table or we have a different report.

Which one? What's the front page on yours?

Q. The Health Consequences of Involuntary

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Smoking?

A. See, 128, Table 1.

Q. Go to Page 130, then. There we go.

A. There we go.

Q. Table 2.

A. Okay.

Q. And do you see the column that reports the mainstream yield for ammonia?

A. Yes.

Q. It ranges from 50 to 130 micrograms, correct?

A. That's what this table says.

Q. Doctor, what's a microgram?

A. Let's see. It's one-thousandth of a gram.

Q. A microgram is one-thousandth of a gram?

A. Uh-huh.

Q. It's not one part per million?

A. Oh, right. You're right. It is. Micro. Yes. Right. I said milligram.

Q. How would you explain what one part per million of air is, Doctor?

A. One part per million of air. Let's see. How would I explain that?

It would be like if I had a bathtub and I had a single grain of salt or something like that in

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a bathtub, probably something close to that.

Q. Do you see in this same table, ammonia in sidestream smoke?

A. Yes.

Q. Does ammonia in sidestream smoke have a greater yield than 50 to 130 micrograms?

A. I'm sorry, sir. What do you want me to look at?

Q. Does ammonia in sidestream smoke have a yield greater than 50 to 130?

A. Oh, here we are. Sidestream over mainstream.

So the ratio of sidestream over mainstream means that there's more ammonia in sidestream than mainstream, and so there's 50 to 170 percent more side -- ammonia in sidestream smoke than mainstream smoke.

Q. 40 over 170?

A. No. That's a range, sir. And it's a ratio.

Q. Okay.

A. So that means there's more ammonia in sidestream smoke than mainstream smoke, which is what I said yesterday.

Q. Okay. But sidestream smoke is not

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environmental tobacco smoke, is it?

A. According to the EPA from California, they equated the two.

Q. Are you telling this jury that ETS concentrations of ammonia are higher than in mainstream concentrations?

A. Yes, sir. And that report says so.

Q. Well, one way to test your theory, then, is to look at the levels of ammonia that have actually been measured in environmental tobacco smoke, correct?

A. Yes. You could go into a smokey bar and make those measurements.

Q. Well, since you told this jury about ammonia, I assume that you can tell them about all of the studies that have measured ammonia in the aircraft cabin?

A. I know there is a study. I haven't read it.

Q. You came to this jury and made statements with respect to ammonia levels in environmental tobacco smoke; you knew that there was a study exactly on point, and you had not read it?

A. I had not read it because I can't read the copy I was given. It was a Xerox copy that had been

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faxed, and it's in a journal that I don't have ready access to.

Q. Let me show you what's been marked for identification as Defendant's Exhibit A-14.

A. The Health Aspects of Smoking in Transport Aircraft. This is not a journal article. It's some report.

So at this point -- it says something about the U.S. Department of Health and Education, but it does not indicate how it was reviewed.

When was this done, sir?

Q. I believe the cover shows --

A. Oh, '71. Okay.

Q. Now, you hadn't reviewed this study before coming here and talking to the jury about ammonia that's in ETS, had you?

A. No. I have never seen this one before.

Q. And this study was conducted by the United States Department of Health, Education and Welfare, correct?

A. I don't know that.

Q. If you look at the cover of --

A. I see a stamp on the front of it, but I don't know that these people conducted it. They may have had somebody else do it for them.

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Q. Well, if you look to Roman numeral III, and you read the first sentence, doesn't it say, "A study of the health aspects of smoking in transport aircraft was conducted jointly by the Federal Aviation Administration, the Department of Transportation, the Bureau of Occupational Safety and Health, Environmental Control Administration, the Public Health Service, and the Department of Health, Education and Welfare."

A. Okay.

Q. Do you see that?

A. No, I don't, but what --

Q. Page Roman numeral III.

A. III. Oh, now I do. Yes. That's what it says.

So now I know.

Q. And these are the federal government agencies responsible for protecting the public health, correct?

THE COURT: I'm sorry. What year was that study?

THE WITNESS: 1971.

THE COURT: I'm sorry. Go ahead.

BY MR. ENGRAM

Q. Dr. Irvin.

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A. Yes.

Q. These are the federal government agencies responsible for protecting public health?

A. They're responsible for our health, yes.

Q. Let me ask you to turn to Page 20.

In fact, as part of this study, concentrations of ammonia were measured on aircraft, weren't they?

A. It says here on Number 4, concentrations of ammonia were measured on four flights.

Q. And they were found to be below the detection level of the method, correct?

A. That's right.

Q. That meant --

A. The method that they used in 1971.

Q. Right. The method that was used in 1971 had a detection level of .02 parts per million.

A. That's right.

Q. Now, when we talked about mainstream smoke in the Surgeon General's Report, they found that mainstream smoke -- ammonia in mainstream smoke was found at 50 to 130 parts per million; do you remember that?

A. Yes, I do.

Q. Okay. And in this instance, they looked

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for ammonia and could not find it, correct?

A. Yes. That's correct.

Q. And the detection limit was not one part per million; it was .02 parts per million?

A. The method they used had a detection limit of 0.2 parts per million.

Q. So if you take 50 parts per million, the level of ammonia found in mainstream smoke, according to the United States Surgeon General, and you compare that to the detection limit here, when the United States government did a study looking for ammonia on smoking flights, they couldn't find it at a level that was 2,500 times smaller than the level in mainstream smoke?

A. There are a lot of issues that would result in this kind of a finding. I don't know if people were smoking on these flights. I don't know what the ventilation in the cabin was.

Q. The fact of the matter is, if you had read this study before you came to court, you might know the answers to that question, right?

A. Maybe. Maybe not.

Q. And those issues aside, they could not find it at a level that was 2,500 times smaller than detected in mainstream smoke?

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A. According to this report, using the techniques and the experimental design, that's right.

Q. Now, if you turn back to page -- do you know -- you don't know how many passengers were smoking on this flight, where they couldn't find ammonia, do you?

A. No.

Q. If you turn back to Page 20, you see -- excuse me. If you turn back to page Roman number III, it says -- it refers to these military aircraft command flights as 20 international flights, correct?

A. Okay. Now you've lost me. I was on Page 20, Roman numeral III.

Q. No. You were on Page 20. I meant to send you back to Roman numeral III.

A. Roman numeral III. Okay. Back in the front.

Okay.

Q. In the second paragraph, they said that they used a questionnaire during 20 military aircraft command international flights.

A. Okay. They used -- okay. I see that.

Q. Okay. And then if you turn to Page 40,

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would you agree that it says that all of the MAC flights were filled to capacity?

A. That's right.

Q. Okay. And that the number of passengers on all the MAC flights was 3,043?

A. Okay. Fine.

Q. Now, on Table 7 on Page 41, does that tell you what percentage of the smokers -- what percentage of smokers were on these flights?

A. Unfortunately, Mr. Engram -- oh, here we are.

Q. Table 7?

A. A lot of my pages don't have numbers.

Q. Okay. I'm sorry.

A. So which table are we on now?

Q. Table 7.

A. Yes.

Q. Smokers, 57 percent of the smokers -- 57 percent of the passengers were smokers on those flights.

A. Yes, sir. 45 percent on the domestic flights.

Q. Okay. So over 50 percent of the passengers on these flights smoked, and there still was not enough ammonia in the air for the government

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to measure it, correct?

A. That's correct, but they certainly were annoyed by it.

Q. Well, let's talk about that.

A. It's on the next page.

Q. Passengers were annoyed by smoking.

A. Yes. They were.

It's interesting because the nonsmokers were much more annoyed than the smokers.

Q. Let's go ahead and look back at basically the conclusions of the overall study found on Roman numeral III and Roman numeral IV.

A. Is that in the front?

Q. Yes, sir.

"The results of environmental sampling revealed very low levels of each contaminant measured much lower than those recommended in occupational and environmental air quality standards." Is that a correct statement?

A. That's what it says.

Q. If you turn to page Roman numeral IV, the next page: "These combustion products were judged not to represent a hazard to the nonsmoker passengers, based on environmental levels and expected dosage/response relationships of the

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contaminant.

"However, evaluation of the results of the questionnaire indicated that a significant portion of nonsmokers, over 60 percent, were bothered by tobacco smoke, and suggested that corrective action be taken, such as segregation of the smokers.

"Furthermore, 70 percent of nonsmokers who had a history of respiratory conditions expressed annoyance by tobacco smoke."

That was the conclusion, correct?

A. Yes, sir. My wife would conclude with that, too.

Q. Doctor, how many hours per year did Ms. Fontana fly as a flight attendant?

A. A lot.

Q. Can you give me a specific number?

A. I'd have to get out those records that I have to quote the hours.

Q. Can you give me an approximation?

A. I wouldn't want to.

Q. Okay. The fact is --

A. Do you want me to look at it?

Q. -- is you don't know how many hours per year Ms. Fontana flew, do you?

A. I do if I look at the piece of paper in my

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briefcase.

Q. It was not a factor that you needed in forming your opinions in this case, was it?

A. Yes, it was.

Q. But you've forgotten now how many hours it was?

A. Precisely, yes.

Q. And you cannot approximate it, without looking at this piece of paper?

A. Well, one thing I've learned in talking to you, Mr. Engram, is I wouldn't want to approximate anything, and I would like to get out my piece of paper and look at it.

Q. Well, feel free to get out your piece of paper and look at it, then.

A. In 1993, she flew 923 hours. In 1994, she flew 838. And in 1995, she flew 650 hours.

Q. So you have total hours flown for those three years?

A. That's right.

Q. How many of those hours were flown on smoking -- on flights where smoking was permitted?

A. Well, the one thing I know is smoking wasn't banned on international flights until '97. So in '93, she took 89 flights, and they don't have

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on this piece of paper the total hours on the international flights. So I --

Q. Precisely. You don't know how many hours on international flights Ms. Fontana flew in 1993, do you?

A. I can quickly estimate it for you, if you want.

Q. I thought you pulled out this paper --

A. Well, I've flown on these flights, from the east coast to Europe. They're about six hours. So six times 89 hours -- I'm sorry -- you're right, it's 89 hours. No, wait a minute. It's 89 flights. So 89 times six hours, approximately.

Q. You didn't use that table in forming your opinions in this case, did you?

A. Yes, I did. But it's also important to point out that she's been flying for 22 years, and most of the flights that she was on I understand were international, particularly the early years.

Q. Are you estimating and approximating now, Doctor?

A. I'm estimating and approximating, sir.

Q. Let me just find this reference here. I believe it's on this page.

How many smoke -- how were smokers and

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nonsmokers separated on her international flights?

A. Well, I don't know how they were separated on her flights, but I know how they were separated on the flights that I've been on.

Q. That's fine. I just asked if you knew how they were on her flights.

Do you know when she flew on flights with smoking sections and nonsmoking sections, how much time she spent in each section?

A. I have no idea.

Q. Do you know whether the concentrations of environmental tobacco smoke are different in smoking sections versus nonsmoking sections of the aircraft she flew on?

A. On the ones that she particularly flew on, no, I don't. I just know how they were on the ones I've flown on.

Q. If I told you that a witness in this case was going to testify --

MR. HUNTER: Judge, I object to this. I believe that this is argument.

THE COURT: I don't know what the question is going to be.

BY MR. ENGRAM:

Q. If I told you that a witness in this case

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was going to testify that once you get seven rows away from the smoking section, ETS levels are teeny, tiny, would you agree or disagree?

MR. HUNTER: Object.

A. I would disagree with that.

THE COURT: Overruled.

A. And my wife would disagree with that. My wife has asthma, and when she gets exposed to environmental tobacco smoke. She starts coughing and hacking. And we've been on those flights, seven rows behind the smoking rows, because that's where we have to sit, and she starts to hack and cough.

Q. You have to sit seven rows behind the smoking section?

A. Well, it doesn't matter where we sit in those planes because you get exposed to this stuff.

And as pointed out in this report, it's very annoying to those that are in the plane cabins with the smokers.

Q. Have you even read a single environmental tobacco smoke exposure study that had been conducted on an airplane?

A. I tried to.

Q. You spoke with Ms. Fontana some time earlier this year, didn't you?

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A. Yes, I did.

Q. Let's talk about your conversation with Ms. Fontana.

You don't know what the date of that conversation was, do you?

A. Not precisely, but I can find out.

Q. I asked you if you knew what the date of the conversation was, and you said no. How is it that you now are able to find out?

A. Well, I can deduce it by looking at my diary. I can ask Mr. Hunter the date that we had that conversation. And I can probably ask my wife. My wife might remember the date of that conversation.

Q. But you don't know, and you didn't offer to do any of those things when I asked you if you knew what date you had the conversation with Ms. Fontana, did you?

A. I don't think you asked me, but I certainly would have offered it to you, sir.

Q. You believe I didn't ask you what date you had the conversation? Turn to Page 30 in your deposition.

A. I told you at the time I couldn't quite recall the date. But you didn't ask me to find it

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out. And I would have, if you had asked me to.

MR. HUNTER: Judge, I object to this as irrelevant.

THE COURT: Sustained.

BY MR. ENGRAM

Q. Now, she told you that she thought that the Boeing 767 airplane was worse for some reason, correct?

A. That's right.

Q. She told you that she would get nose bleeds, correct? Did she tell you she got nose bleeds?

A. Yes, she did.

Q. Can dry air in aircraft cause nose bleeds?

A. Yes.

Q. Did she report to you that when she was in a hotel in Europe, or in a restaurant in Europe, that she would begin coughing?

A. That's right. But she wouldn't start coughing over here as much because they smoke a lot more over there.

Q. And did she tell you that exposing herself to environmental tobacco smoke caused her to be nauseous?

A. Yes.

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Q. Now, Dr. Irvin, you've reviewed the medical records of Dr. Greene and Dr. Coopersmith, the two doctors -- the two lung doctors that treated Ms. Fontana, right?

A. That's correct.

Q. Did you see any reference in the medical records of Dr. Greene or Dr. Coopersmith, where Ms. Fontana told her lung doctors that exposing herself to environmental tobacco smoke caused her to be nauseous?

A. I don't remember that.

Q. Do you see any reference in her medical records that when she was in Europe, it was a big problem?

A. No.

Q. Now, you did see reference in Dr. Coopersmith's records that she had problems at high altitude, correct?

A. That's correct.

Q. When the plane reached 40,000 feet, correct?

A. That's right.

Q. Or when she was in Denver, correct?

A. I think I remember a passage like that.

Q. You lived in Denver for 18 years, didn't

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you?

A. Yes, sir, I did.

Q. Denver is not in Europe, is it, sir?

A. No, it isn't.

Q. But she never told Dr. Coopersmith or Dr. Greene that she had problems when she was in Europe, did she?

A. No, she didn't.

Q. You're the only one she told, correct?

A. Well, that I don't know.

Q. She had this conversation with you for the sole purpose because she wanted to talk with you about her lawsuit, correct?

A. No. I think the way that went was that I wanted to talk to her about her symptoms.

Q. But for this lawsuit --

A. Oh, yes.

Q. -- you would have never had the conversation with Ms. Fontana?

A. Oh, absolutely not, no.

Q. Your conversation -- the purpose of your conversation wasn't to treat her, certainly, was it?

A. I would hope not.

Q. It would be illegal for you to offer any treatment advice to a person, wouldn't it?

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A. It would be illegal, but certainly as a friend, I might offer advice about medical issues.

Q. It would be illegal, because it would be illegal for you to practice medicine?

A. Oh, yes, sir.

MR. ENGRAM: That's all of the questions I have of this witness, Your Honor.

THE COURT: Redirect?

MR. HUNTER: Yes, Judge.

REDIRECT EXAMINATION

BY MR. HUNTER:

Q. Dr. Irvin, do you need to be a scientist to understand the concept that if people are smoking cigarettes on an airplane and they're breathing in the smoke and blowing it out, and the cigarette is burning and there is smoke coming off the tip, that the environment is going to be a combination of smoke?

A. That seems like common sense to me.

Q. Okay. The study that was relied upon by the lawyer for the tobacco company was done 30 years ago, correct, 1971?

A. This one with the guys on the airplane.

Q. The one that he was asking you the question about?

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A. In the military, yes, '71.

Q. That was before the study that lead up to the ban of smoking on airlines, correct?

A. Well, before.

Q. That was 30 years before the science progressed to the point where it's progressed to today?

A. That is correct.

Q. In fact, are you familiar with the fact that the EPA just promulgated a report on Wednesday of this week concerning environmental tobacco smoke?

A. Yes, sir.

MR. ENGRAM: Objection. Hearsay, Your Honor.

THE COURT: Overruled.

BY MR. HUNTER:

Q. And isn't it a fact that the EPA on Wednesday of this week reported that people today have less exposure to secondhand smoke than they did ten years ago?

MR. ENGRAM: Leading, Your Honor.

A. Yes. I saw that on T.V.

THE COURT: Sustained.

Rephrase it.

BY MR. HUNTER:

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Q. What is your understanding of the Environmental Protection Agency's findings of Wednesday of this week?

A. My understanding of the findings, and I saw this on T.V. the other night --

MR. ENGRAM: Hearsay, Your Honor.

A. -- is that over the last --

MR. ENGRAM: He hasn't read the report.

THE COURT: Sustained.

BY MR. HUNTER:

Q. Have you read the EPA report?

A. I've read an excerpt. I haven't read the whole report. I'm going to go on the Internet as soon as I can and read it.

Q. Is the excerpt enough for you to tell the jury at least from a scientific basis the general findings of the EPA?

A. Well, the general findings --

MR. ENGRAM: Objection, Your Honor.

THE COURT: Overruled.

If you can answer the question, answer it.

A. The findings agree with what we all know; and that is, that there's less tobacco smoke in the air, and the EPA has demonstrated scientifically that there's less exposure to people nowadays to

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environmental tobacco smoke; and it's gone down about -- I've forgotten how much, but it's markedly reduced over the last ten years.

I conclude from that that the ban on smoking in public places like this courthouse and restaurants has been effective.

BY MR. HUNTER:

Q. And 30 years ago you could -- there was smoking in this courthouse and in public places all across the United States?

A. That's correct.

Q. Now, you were asked questions about this study there that involved, I believe, some flights, the number -- I forget how many flights you were referencing.

Can you think of a better group of people to study if you wanted to determine the health effects of environmental tobacco smoke on airplanes than flight attendants?

A. Not really, because they would be people -- if they were nonsmokers, for instance, if you investigated the health of their lungs and looked at the number of hours they flew and which flights allowed and didn't allow cigarette smoke, you could come up with a fairly good estimate of how

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much exposure they've had to cigarettes.

You could almost administer a questionnaire, and I was reading a paper this morning where they did so.

MR. ENGRAM: Objection. Hearsay, Your Honor.

THE COURT: Overruled.

A. They could also estimate and actually get -- actually underestimate the actual exposure of cigarette smoke, so you could get pretty close to it.

BY MR. HUNTER:

Q. All right. Now, let's get back now to the physiology of the lung disease that Marie suffers from.

You've conducted pulmonary function tests, as I understand it, correct?

A. That's correct.

Q. Or you've reviewed the tests that were conducted?

A. These -- I've reviewed these tests.

Q. Okay.

A. And I've conducted --

MR. ENGRAM: Your Honor, excuse me.

A. -- like tests in --

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MR. ENGRAM: Your Honor, this goes beyond the scope of cross examination.

THE COURT: Overruled. I don't know yet.

BY MR. HUNTER:

Q. How do the pulmonary tests, the pulmonary function tests that were performed on Ms. Fontana, support the conclusion that she has obstructive lung disease?

MR. REILLY: Objection, Your Honor. Beyond the scope.

THE COURT: Overruled.

A. The lung function tests that have been performed on Ms. Fontana support the statement and the opinion that I have, that she has airways disease in three ways: Number one, the ratio of FEV-1 to FEC, the thing that we were talking about yesterday, while it's high at the beginning of the time that they began to measure it, during the course of the ten or so years that they were making those measurements, the FEV-1 is falling faster than the FEC.

Now, in a normal person it falls about 25 CC's a year, and in a smoker who's developing lung disease, it falls about 50 CC's a year. And in Ms. Fontana, it falls 76 CC's a year.

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Now, her forced vital capacity is also falling, but her FEC-1 is falling greater than her forced vital capacity. We generally conclude from that that the process that's going on in her airways is progressing faster than the process that's going on in her parenchyma. That's the first piece of evidence.

The second piece of evidence is when she goes down to residual volume, her residual volume is quite high, and from studies that have been done in the literature, people with sarcoid generally don't have such high residual volumes.

So when you see high residual volumes, you start thinking about abnormal airways, because as you expire down to RV, your airways collapse. That's the second reason that I think she's got airways disease.

The third reason why I think she has airways disease, or lung disease that's been made worse by tobacco, is the fact that her diffusing capacity is quite low. And it's --

BY MR. HUNTER:

Q. That diffusing capacity, tell us what that is.

A. The diffusing capacity is that test where

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you take a big breath in and there's helium and carbon monoxide, and we measure how quickly carbon monoxide leaves the lungs and goes into the bloodstream. If the lung is real big, the carbon monoxide leaves very rapidly and we get a high diffusing capacity. That means that there's a lot of carbon monoxide or oxygen that leaves the alveolus and goes into the bloodstream.

Now, Ms. Fontana has a diffusing capacity that's half of what she should have, half of what she should have.

Now, when you correct for the lung volume, it's still lower than that, so the reason her diffusing capacity is low is not because her lungs are small -- only about half of it is down because her lungs are small because of sarcoid -- the other half is low because of some other process.

Now, since she has other evidence of airways disease, it seems reasonable to assume that the two things are linked.

Now, I've been reading more about this. In fact, I read a paper this morning about the effects of environmental tobacco smoke on normal people working, at work and at home, and in that paper they show --

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MR. ENGRAM: Objection, Your Honor, hearsay.

MR. REILLY: Bolstering, Your Honor.

THE COURT: Let's have a brief sidebar.

(The following proceedings were had at sidebar:)

MR. REILLY: This is bolstering. That's all it is, is just bolstering. He read the study this morning, it tells me this, and he tries to present it to the jury. That's classic bolstering.

MR. HUNTER: I'll rephrase it. I'll rephrase it.

MR. ENGRAM: Your Honor, I object to him using a study that he read this morning for the first time. We deposed this man three times, and that's just been a sandbag. There is a disclosure. He doesn't talk about this study.

THE COURT: Let's avoid references to his latest research.

MR. HUNTER: Well, I mean, I didn't tell him to do that. He did it.

THE COURT: I understand that.

MR. HUNTER: All right.

THE COURT: We don't know what the studies

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are.

MR. REILLY: Judge, that's exactly right.

MR. HUNTER: Let me try and rephrase this question.

THE COURT: Okay.

MR. REILLY: The results of him just rephrasing it go right back to something he read over this morning. This is in the middle of trial. He's doing this research in middle of trial and --

THE COURT: I'll allow him to rephrase it.

(The sidebar conference was concluded, and the following proceedings were held in open court:)

BY MR. HUNTER:

Q. Now, Doctor, I don't want you -- I don't want you to refer to any particular study or tell the jury what a study may have said, but give me your opinion on this issue.

A. Would you restate the issue?

Q. I'm going -- I want to understand the reasons that you -- all of the reasons -- I want the jury to understand, by you telling them the reasons that you believe that she has COPD --

A. Oh, okay.

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Q. -- emphysema and airways disease.

MR. REILLY: Your Honor, may we object and have one short additional discussion?

THE COURT: Pardon?

MR. REILLY: Can we have a short additional discussion, please?

THE COURT: No. Let's just go over it. Answer the question.

A. Well, as I've said before, the fact that her airway function -- the changes in her FEV-1 are outstripping the changes in forced vital capacity, I think that's due to airways disease. I think the trapping in her lung, as she exhales to RV, she has --

BY MR. HUNTER:

Q. RV, that's residual volume?

A. Residual volume. So as I breathe out -- I have asthma, so you can kind of hear it.

As you get down close to RV, your airways start to collapse and you get a bigger RV when you have airways disease like I do.

Q. I know physiologists like to say RV. It means?

A. Residual volume.

Q. If I breathe out --

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A. Right.

Q. -- that means I've still got air in here?

A. You've still got air in your lungs. Now, assuming you're normal, and I don't know if you are or not, about 20 percent of your lung volume is left in your lung when you reach a maximum expiration.

In Ms. Fontana, 40 percent of her lung volume is still there when she gets down to the bottom. So that means that her trapped or residual volume is double what it should be.

Now, the other index that we use to assess lung function is this diffusing capacity test. And her diffusing capacity test is very, very low. And it's lower than you would guess, based on the fact that she has a small lung because of the sarcoid.

And in all of the studies I've seen, the diffusing capacity, when corrected for the size of the lung, is normal. Hers is not. Hers is lower than that. And that has to mean that something else is going on in her lung.

Q. That would be the obstructive --

A. Destructive, obstructive disease, either obstructing the airways or destroying the lung.

Q. All right. Now, when I did my direct examination of you, you and I discussed only

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obstructive disease, did we not?

A. That's correct.

Q. And when you were cross examined by Mr. Engram, he was -- he was asking you questions about your opinion concerning whether her sarcoidosis itself was affected by the smoke; is that correct?

A. Yes.

Q. All right. As I understand -- you told us your the opinions concerning emphysema, chronic obstructive pulmonary disease, which is airways disease, but you are also of the opinion that her sarcoidosis itself is affected by the smoking?

MR. ENGRAM: Objection, Your Honor.

A. Yes, I am.

MR. ENGRAM: Leading.

THE COURT: Sustained.

Rephrase.

MR. HUNTER: All right.

BY MR. HUNTER:

Q. Now, that's an opinion -- that was the opinion -- the opinion concerning sarcoidosis was the opinion that you hold as a theory? That's the dialogue you had with Mr. Engram about the theory?

A. Right. On the 23rd I held that as a

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theory, and I've been reading the literature since then, and I think it's supported by the literature, so I think it's a fact at this point in time.

Q. Okay. But that is in addition to chronic pulmonary disease?

A. Oh, yes.

Q. Or chronic bronchitis?

A. Oh, yes. So if we go to the diffusing capacity test, for instance, and her lung volumes, in particular, her lung volumes are much lower than you normally see in patients with sarcoid.

In a study that I read that was done by my colleague in the next office over, he showed that --

MR. REILLY: Objection, Your Honor.

MR. ENGRAM: Objection, Your Honor. Hearsay.

MR. REILLY: And bolstering.

THE COURT: Overruled.

You can refer to the study.

A. This was a study done in the same laboratory that I was the director. They looked at 30 consecutive patients with sarcoidosis. Half of those patients smoked. They compared the lung function in the smoking sarcoids, and the smoking wasn't a lot, it was only about 12 pack-years, and

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they compared it to the nonsmoking sarcoid patients.

The patients who smoked and had sarcoid had lower lung volumes, markedly lower lung volumes and similar to the lung volumes that Ms. Fontana has.

Now, it's important that these are the first 30 guys that come through the door. They're not carefully selected by any means. It's also important that that study showed that the diffusing capacity, when corrected for lung volume, was normal, and supports my opinion that this patient has another process in the lung that's making her lung function worse, and the most likely thing for it is the destructive things that are seen on CT.

BY MR. HUNTER:

Q. Doctor, I'm showing the jury the first time that she went to Dr. Coopersmith, she draws his attention to her occupation, as it affecting her lungs, and specifically draws his attention to her being affected when she works in the smoking section of the aircraft, correct?

A. That's correct.

Q. Now, you were asked some questions about whether you knew specifically what her flights were, what specifically her exposure was. Have you flown

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on TransWorld Airways across to Europe?

A. I've flown TransWorld Airlines from New York City to Israel.

Q. Okay. Do you know that she flew to Israel?

A. No, I didn't, but I'm not surprised.

Q. Okay.

A. I've flown other planes to other parts of Europe.

Q. Your observation as a pulmonary physiologist, in your experience on that airplane, was there smoke throughout the airplane?

A. Well, you don't have to be a pulmonary physiologist. You can see it in the air. You can smell it. And when your wife next to -- in the seat next to you starts coughing her head off, you know that it's in the air.

Q. My colleague suggested a question.

Have you ever served as an expert witness before?

A. No.

Q. Have you ever testified in a courtroom before?

A. No.

Q. Have you ever been cross examined in any

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court -- I guess you've never been cross examined by an attorney for the tobacco industry?

A. No.

Q. Except for this experience?

A. No. I'm not looking forward to it the next time either.

MR. HUNTER: If I might have just a minute, Your Honor.

THE COURT: Yes, sir.

BY MR. HUNTER:

Q. You were asked a question by Mr. Engram, and your response referenced the fact that Marie is on a waiting list and needs a lung transplant.

Do you agree that that's correct?

A. I agree that she's on a waiting list to have a transplant, yes.

Q. But for the obstructive lung disease, but for the airway disease, the chronic obstructive pulmonary disease, but for the emphysema, in your opinion would she need to have her lungs transplanted?

MR. ENGRAM: Your Honor, objection. This witness is not qualified to give this opinion. It's beyond the scope.

THE COURT: Sustained.

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BY MR. HUNTER:

Q. Have you devoted time to this case that you're not charging for?

A. Yes.

Q. Why?

A. Well, this is the first time I've ever done this, and --

MR. REILLY: Objection, Your Honor.

THE COURT: Overruled.

Go ahead.

A. When I was approached to be an expert witness, I was told by my colleagues: You should charge for your time.

MR. REILLY: Objection, Your Honor.

Hearsay.

THE COURT: Overruled.

A. So I called up a colleague of mine back at National Jewish, who does this quite frequently, and we discussed the rates and whatnot. And he told me that people charge anywhere from $250 to $500 an hour. I think the real hot-shots may charge $500 and, I thought, well, this is the first time I've ever done it; $300 seems reasonable to me.

And then as we got into this case, I realized that I needed to do a lot more literature

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search, looking at the literature, learning more about these things, sarcoidosis, environmental tobacco smoke, and I'm not charging Mr. Hunter's firm for that time because I'm educating myself, and that's what I'm supposed to do as a professor.

MR. HUNTER: All right. Thank you, sir. I have no further questions.

THE COURT: On the limited area of the new studies that support his theories, do you have any questions?

MR. ENGRAM: No, Your Honor.

I would like to do recross with respect to these test results that he testified to for the first time on redirect.

THE COURT: Okay. Then just on these new test results.

MR. HUNTER: Judge, that's a misrepresentation. There weren't any new test results brought up.

THE COURT: Give him a chance to find out whether it's a new area. If not, we'll stop.

Behind Mr. Jackson?

MR. HUNTER: Judge, the pulmonary function studies were examined on direct --

THE COURT: We'll find out. I agree with

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you.

RECROSS EXAMINATION

BY MR. ENGRAM:

Q. Dr. Irvin, you would agree that Marie Fontana had 11 different pulmonary function study tests done?

A. According to this chart, yes. I think she's had other ones that occurred before 1989. And they're in the records of Dr. Greene.

Q. You had, in your deposition, in your records, pulmonary function tests that took place prior to February of 1989 that you did not produce in your deposition?

MR. HUNTER: Judge, I object to this line of questioning. Pulmonary function studies were addressed on direct and --

THE COURT: Yes, sir. That's true.

MR. ENGRAM: But I'm talking --

THE COURT: As a preliminary. Is it just a preliminary question?

MR. ENGRAM: Yes, Your Honor.

THE COURT: Let's get to it real quick.

MR. ENGRAM: Okay.

BY MR. ENGRAM

Q. With respect to the FEV-1/FEC ratio,

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Dr. Irvin, isn't it true that all of Ms. Fontana's measurements for this ratio were in excess of 80 percent?

A. That's correct.

Q. And isn't it true that the American Thoracic Society's standard for the interpretation of pulmonary function tests for obstructive disease requires a finding -- a reading below 80 percent of the FEV-1/FEC ratio?

A. In pure obstructive disease, that's correct. In mixed diseases, that's not correct.

Q. You talked about this diffusing capacity on redirect.

Would you agree that patients with sarcoidosis have reduced diffusing capacity?

A. Yes, they do.

Q. Would you agree that patients with COPD, emphysema or chronic bronchitis have reduced diffusing capacity?

A. I would agree that patients with emphysema have reduced diffusing capacity. I would not agree that patients with bronchitis have decreased diffusing capacity.

Q. Would you agree that patients with sarcoidosis have reduced VA?

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A. Yes, I do.

Q. And, in fact, Ms. Fontana had reduced VA, correct?

A. That's right.

Q. She had both reduced VA and diffusing capacity, but patients with COPD, emphysema or bronchitis do not have reduced VA, do they?

A. Would you repeat that question again?

Q. Patients with COPD, emphysema or chronic bronchitis do not have reduced VA?

A. That's absolutely wrong.

Patients with emphysema definitely have reduced VA, because their volume of their alveolus that's communicating with their air space is smaller.

Q. Patients with chronic obstructive pulmonary disease or chronic bronchitis do not have reduced VA?

A. Patients with chronic emphysema, with emphysema, have reduced VA.

Q. That wasn't my question.

Chronic obstructive pulmonary disease or chronic bronchitis?

A. Now we're going to get into the discussion of what constitutes chronic obstructive pulmonary

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disease.

MR. HUNTER: Judge, I object. This should have been covered on the first cross. This is not a new matter.

THE COURT: I'll let him get into it a little bit with a little leeway.

A. The volume of the alveolus, as measured with a single breath helium test, measures the amount of lung that's communicated. Now, if you do the test fast, then what you find, as the lung volumes go down, and so in patients with obstructive lung disease, like emphysema, where they have these large spaces that don't communicate, the volume of their alveolus goes down.

In patients with bronchitis, because as long as their airways are open, you may get a normal volume of the alveolus.

BY MR. ENGRAM:

Q. You can't tell by reviewing the pulmonary function test alone what the diagnosis of Ms. Fontana's disease would be, can you?

A. No, sir, because diagnosis is based on pathological results.

MR. ENGRAM: Thank you. No further questions.

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THE COURT: Any brief redirect?

MR. HUNTER: We have no further direct, Your Honor.

THE COURT: Doctor, thank you very much.

Let me see the attorneys up here. I don't need the court reporter. I just want to get scheduling.

(A sidebar conference was held off the record.)

THE COURT: Ladies and gentlemen, it's noontime, so I'm going to let you go, and I'd ask you to be back here at 1:30. I'll have the lawyers back here at 1:20, and hopefully we'll be able to start at 1:30.

Remember my instructions. Enjoy a good lunch, and don't let anybody talk to you about the case. Don't talk to anybody about the case. You're not even supposed to talk amongst yourselves about the case.

So just enjoy the lunch and we'll see you at 1:30.

(The jury exited the courtroom.)

THE COURT: Mr. Reilly.

MR. REILLY: Your Honor, at this time on behalf of the defense, I would move for a

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mistrial. The basis for the motion are two--fold, and then a cumulative effect.

This morning there were efforts at having one expert comment on the testimony of another expert. The objections to that were sustained.

Yesterday, that was permitted, over my objection, and there was an admission by Mr. Hunter that what he was doing was in violation of the rules of evidence in the State of Florida.

So that's the first basis.

The second basis, and I'll remind Your Honor, it came in in connection with Mr. Hunter reading from the deposition of Dr. Koenigsberg, our expert, and asking his witness, his radiology expert, whether or not he agreed with the opinion of Dr. --

THE COURT: That was only after you had done the same thing over and over and over and over again, even after my warning.

MR. REILLY: Your Honor, what I did yesterday is not asking one expert to comment on the opinion --

THE COURT: Then your definition and mine disagree.

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MR. REILLY: You're right, Your Honor.

THE COURT: What's the other basis?

MR. REILLY: The other basis is the bolstering that just occurred in this courtroom, when you permitted this witness to recite about a study that he read involving efforts done by his colleague down the hall. That is pure bolstering. It is not permitted. It is reversible error.

And I move on the basis of the cumulative effect of both this allowance of one expert to comment on the testimony of another and the bolstering that occurred this morning.

THE COURT: Okay.

Any comment by the plaintiffs?

MR. HUNTER: I think it was admissible testimony and in under no circumstances would it be grounds for a mistrial.

THE COURT: I don't see it's grounds for a mistrial. I'm going to deny it.

And also I'm getting more and more concerned that I might have erred in excluding certain testimony from the videotape depositions, especially I believe it's of Dr. Burns with reference to the efforts by the

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tobacco company to suppress the scientific evidence; and I wanted you all to think about it, because I may very well, in light of the examinations and the way that the cross examinations of the experts have gone, allow at least Dr. Burns' portion, his comments on that issue to be read to the jury.

I haven't made up my mind yet, but I'm certainly headed in that direction.

We'll see everybody at 1:20.

MR. UPSHAW: Your Honor, we have the motion on the flight attendants. We can take it up when we get back.

THE COURT: Is it the same motion?

MR. UPSHAW: Now, it's a motion to exclude any further testimony of flight attendant witnesses.

THE COURT: Okay. We'll take it up when we come back.

(Court was in recess at 11:55.)

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